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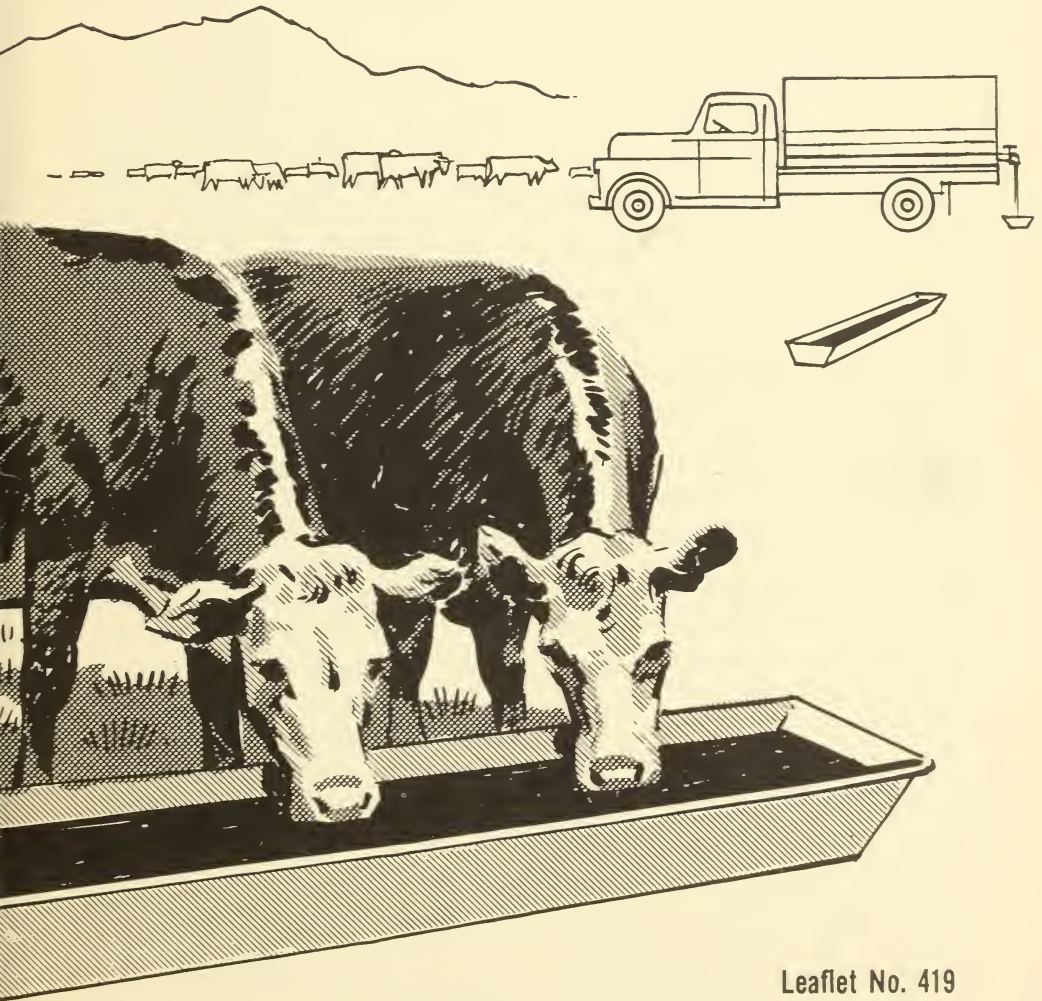
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# Hauling Water for Range Cattle



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# Hauling Water for Range Cattle

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Water hauling for cattle on western ranges offers several advantages. Hauling provides a dependable water supply in dry seasons. It helps the cattle owner to obtain more uniform use of forage. It places water where forage is available. It reduces trailing damage to the range. It permits grazing at the most appropriate time. And with less travel from forage to water, animal weight gains are more easily maintained.

As more livestockmen begin to apply intensive management for better forage yields and higher ranching profit, water hauling will become a more common practice. If your stock water is not well distributed and it is impractical to develop additional wells, springs, or ponds, water hauling may make the difference between mediocre use or efficient use of your range. Uniform grazing of all forage, at a moderate rate, can produce heavier cows and larger calf crops, and can lessen the need for supplemental feed. The cost of this improvement frequently can be quite reasonable.

## When You Should Consider Hauling Water

If your range is unwatered, hauling, of course, can make the difference between grazing and no grazing. Near Fort Rock, Oreg., where natural water is nonexistent, cattle ranchers have prospered since they introduced the practice in 1941. Through experience they are still learning that some water-hauling practices are better than others.

On unevenly grazed ranges, water hauling, in combination with judicious salting and range riding, can prevent waste of unused forage. Even small areas of good forage can be used under this type of management. Since cattle adapt well to frequent moving of water, they can always be kept on fresh feed.

In drought periods all other adjustments in the management program are useless unless water is provided for cows and calves. Water hauling permits grazing of remote areas while drought-stricken vegetation near springs, wells, and other permanent supplies is given needed rest.

If you want a flexible management program, water hauling can help you rotate or defer grazing on sites where permanent water is unavailable. Water hauling also provides opportunity for more effective use of seeded areas. You can also graze any particular unit for any period you choose in spring, summer, fall, or winter.

## Water Supply and Storage

Successful water hauling requires an adequate source of permanent water. Seek a dependable supply within 10 to 15 miles of where cattle are to be watered. Round trips exceeding 30 miles may make your hauling too expensive.

If water from springs, permanent ponds, creeks, or irrigation ditches is not readily accessible by road, it should be piped to storage from which the tank truck can be filled (fig. 1). Storage facilities capable of holding a week's supply of water

are desirable. Use gravity feed from storage to truck.

A common western setup consists of a 5,000- to 10,000-gallon storage tank from which water, controlled by a float valve, flows into a 500- to 800-gallon shallow metal tank (fig. 2). Being difficult to move, these setups are often left in place 3 to 4 years. As a result, the surrounding range is often subject to overuse and deterioration.

A better system used in eastern Oregon consists of two 800-gallon tanks at each watering place. These tanks are moved each year before the cattle come on the range.

The Kingston Grazing Association on the Fishlake National Forest in southern Utah uses a 2,500-gallon storage tank mounted on skids so that it can be moved short distances, or loaded on a truck to be hauled longer distances. At the watering site, two troughs are connected together. Water is delivered through a float assembly.

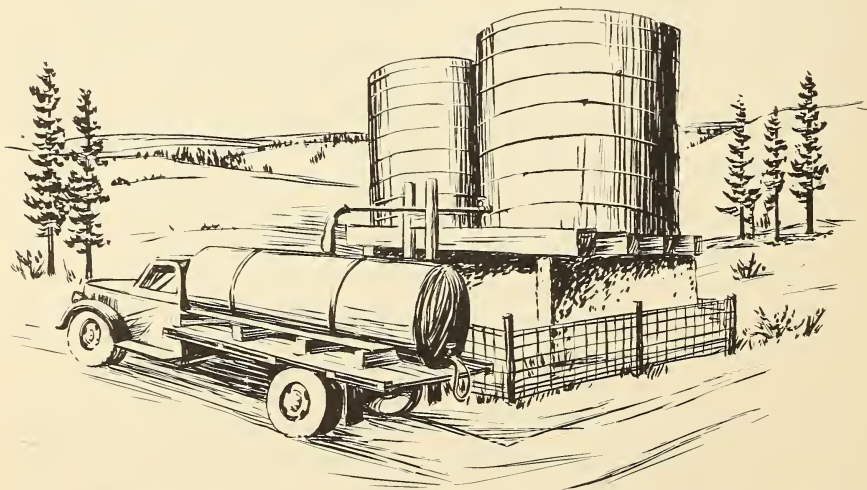


Figure 1.—The main storage tanks should hold at least 1 week's water supply for the cattle on a range unit. Tanks, wells, and pumping equipment at these installations should be protected by fences.



Figure 2.—Water level in a semipermanent stock tank filled from a large storage tank is regulated by a float valve. Gravity feed through a large pipe from truck to storage tank saves time and equipment.

The best system, from the standpoint of maintaining range condition, consists of a group of galvanized rectangular troughs, approximately 8 feet long and 2 feet wide. They should have sloping sides that permit nesting and easy transportation. Their location can be changed whenever forage in the vicinity has been sufficiently used (fig. 3).

### Trucking Equipment

A 1,000-gallon tank truck is most frequently used by western ranchers. Some ranchers use a 1½-ton truck with two 500-gallon tanks for use on terrain with grades up to 10 percent. On steeper grades only one tank is used.

Each tank should have at least a 2-inch outlet and 10 feet of 2-inch hose. With gravity flow a 500-gallon tank will empty in 10 minutes.

A water pump with at least a 2-

inch intake and enough power to lift water 50 feet is desirable for loading tanks from streams and reservoirs.

### Amount of Water Needed

As a rule of thumb, the average cow requires 10 gallons of water per day. A herd of 300 cows with calves will require approximately 4,000 gallons a day. The amount will vary, depending on weather, kind of forage, and size of animal.

One livestock association, through local experience on ponderosa pine summer ranges on the Deschutes National Forest in Oregon, has set the following water requirements: 15 gallons per day for a cow and calf; 10–12 gallons for mature cattle and 2-year-olds; and 7–8 gallons for yearlings.

More water is required as air temperature increases. Agricultural Research Service data show these

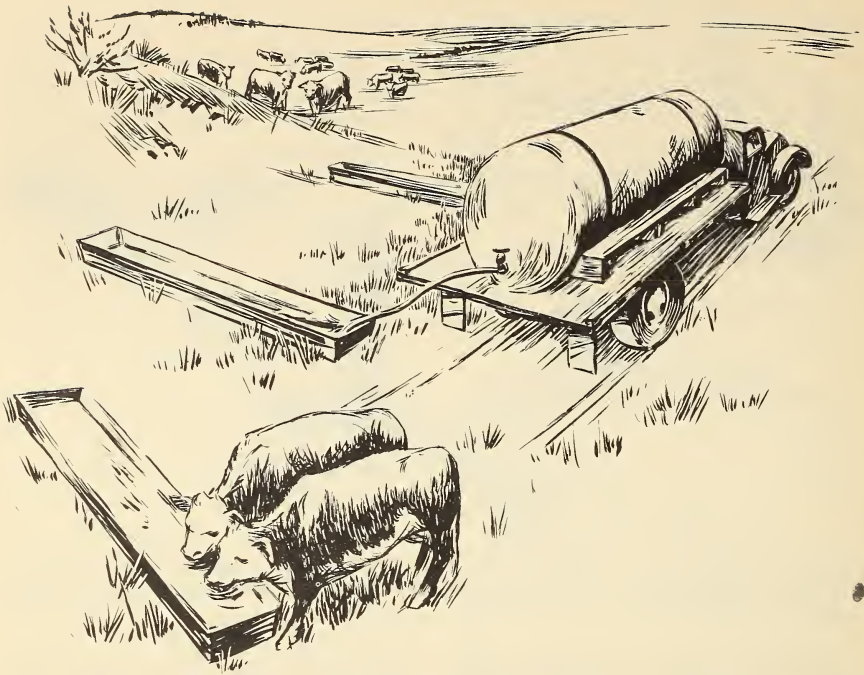


Figure 3.—Portable troughs are best. They can be moved when surrounding forage is sufficiently used. Enough troughs should be used to supply water for 2 days, in the event of truck failure.

requirements for 1,000-pound steers or heifers on southwestern ranges: 7 gallons daily at 40° F.; 10 gallons at 70°; and 17 gallons at 90°.

Less water is required in cool weather, when dew is on the grass, when rain showers are frequent, and when forage is succulent and growing rapidly. You will find that records based on your own conditions will aid in judging amounts of water needed and in computing costs and benefits of water hauling.

### How To Locate Tanks and Troughs

Although cattle will travel greater distances, tanks or troughs should be spaced not more than 1 mile apart on flat or undulating terrain. A closer spacing is desir-

able if the tanks can be moved frequently. In a Utah study, cattle properly used the range within a radius of  $\frac{1}{4}$  mile from the watering tanks. Then the tanks were moved to a new site  $\frac{1}{2}$  mile away. In this way the forage was properly used over the area as a whole.

Several temporary watering locations for 25 to 50 cattle are better than a single watering place for 200 or more cattle. With large numbers of cattle the site must be moved every few days to avoid overuse of vegetation within the  $\frac{1}{4}$ -mile radius.

Tank locations should not be in a direct line where cattle can wear a path between them. Intervening fences or natural barriers are desirable.



When portable tanks are moved frequently, cattle should be driven to familiarize them with new watering locations. If the same pattern of tank or trough movement is used each year, a few old cows with calves will show the yearlings the way to water.

Salt should be placed at least  $\frac{1}{4}$  mile away from water for better grazing distribution. This will cause no hardship to the cattle. The California Forest and Range Experiment Station of the U. S. Forest Service found that the average time lapse between salting and watering by cattle was 7 hours. Continuous travel from salt to water required only 20 minutes.

### What Is the Cost?

Ranchers in Oregon estimate the cost of hauling water at \$1 to \$1.25 per animal per month when hauling distance does not exceed 8 to 15 miles for the round trip in moderately level country. This cost includes depreciation, maintenance of the tank truck, gas and oil, and a portion of the wages of drivers who have other duties involving care of the cattle.

One livestock association near Bend, Oreg., contracted its water hauling in 1950 for \$3.50 per thousand gallons for a 5-month grazing period. The cost per animal was \$5.25 for the season. In 1951, each rancher in the association was assessed \$1 per head per month for water hauling. In 1956 the assessment was \$1.25 per head per month. Round trips averaged 8 to 9 miles.

In southern Utah on the Fishlake National Forest, water-hauling

costs for the Brown's Hole Grazing Association varied from \$1.21 to \$1.39 per animal unit per month. This included contract costs per day and depreciation on improvements. Round trips averaged 57 miles per day on rough terrain with average grades of 5 percent and short grades up to 12 percent.

If you need additional equipment, the following data furnished by the Kingston Grazing Association in Utah may be used as a basis for your own estimates:

<i>Item</i>	<i>Value</i>
1 gas engine pump assembly---	\$95.00
1 storage tank, 2,500 gallons---	350.00
2 trough sections, 42 inches by 10 feet, with pipe connection--	75.00
1 hauling tank, 500 gallons-----	80.00
1 float valve assembly-----	6.00
Total investment, excluding truck-----	606.00

### Checking the Range

Water hauling gives opportunity for constant checking of livestock condition and degree of forage use. Utilization of desirable native plants should seldom exceed 40 percent of available herbage. This is moderate grazing, on the average. Uniformity of range use should be checked at weekly intervals near water, at intermediate distances, and near the limits of livestock travel.

When the range is near proper use, good forage plants are supplying the bulk of the grazing. Low-value grasses, weeds, and shrubs are mostly untouched.

When proper use has been attained, the abundant and desirable grasses are being moderately grazed

throughout the area of livestock travel. There is slight but detectable use of low-value grasses, weeds, and shrubs.

When overuse begins, choice and good grasses are all being used, some of them for the second time. Occasional spots on the range have a mown or hedged appearance. Use of low-value grasses, weeds, and shrubs is readily apparent.

Other signs of overuse are trampled vegetation, closely grazed sod, injury to timber reproduction, browsing of shrubs, and movement of trampled soil during rainstorms.

Zones or bands of *forage use*

around temporary watering places indicate that the range is being unevenly grazed and water should be moved.

Bands of *range condition* around the watering place, in this order: Bare ground, annual grasses and weeds, low-value perennial weeds, poor perennial grass, and finally good long-lived grass—indicate long-continued abuse. Watering in the overgrazed area should be discontinued. Well-spaced movable watering tanks located outside of such areas will provide a needed rest for that part of the range.

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